Setup Guide

Matrix Switchers

IMPORTANT:
Refer to www.extron.com for the complete user guide and installation instructions before connecting the product to the power source.

MPX 866 A

Media Presentation Matrix Switcher

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Extron® Electronics
INTERFACING, SWITCHING AND CONTROL

68-1270-50 Rev. **A**
11 10

Precautions

Safety Instructions • English

This symbol is intended to alert the user of important operating and maintenance (servicing) instructions in the literature provided with the equipment.

This symbol is intended to alert the user of the presence of uninsulated dangerous voltage within the product's enclosure that may present a risk of electric shock.

Caution

Read Instructions • Read and understand all safety and operating instructions before using the equipment.

Retain Instructions • The safety instructions should be kept for future reference.

Follow Warnings • Follow all warnings and instructions marked on the equipment or in the user information.

Avoid Attachments • Do not use tools or attachments that are not recommended by the equipment manufacturer because they may be hazardous.

Consignes de Sécurité • Français

Ce symbole sert à avertir l'utilisateur que la documentation fournie avec le matériel contient des instructions importantes concernant l'exploitation et la maintenance (réparation).

Ce symbole sert à avertir l'utilisateur de la présence dans le boîtier de l'appareil de tensions dangereuses non isolées posant des risques d'électrocution.

Attention

Lire les instructions • Prendre connaissance de toutes les consignes de sécurité et d'exploitation avant d'utiliser le matériel.

Conserver les instructions • Ranger les consignes de sécurité afin de pouvoir les consulter à l'avenir.

Respecter les avertissements • Observer tous les avertissements et consignes marqués sur le matériel ou présentés dans la documentation utilisateur.

Eviter les pièces de fixation • Ne pas utiliser de pièces de fixation ni d'outils non recommandés par le fabricant du matériel car cela risquerait de poser certains dangers.

Sicherheitsanleitungen • Deutsch

Dieses Symbol soll dem Benutzer in der im Lieferumfang enthaltenen Dokumentation besonders wichtige Hinweise zur Bedienung und Wartung (Instandhaltung) geben.

Dieses Symbol soll den Benutzer darauf aufmerksam machen, daß im Inneren des Gehäuses dieses Produktes gefährliche Spannungen, die nicht isoliert sind und die einen elektrischen Schock verursachen können, herrschen.

Achtung

Lesen der Anleitungen • Bevor Sie das Gerät zum ersten Mal verwenden, sollten Sie alle Sicherheits-und Bedienungsanleitungen genau durchlesen und verstehen.

Aufbewahren der Anleitungen • Die Hinweise zur elektrischen Sicherheit des Produktes sollten Sie aufbewahren, damit Sie im Bedarfsfall darauf zurückgreifen können.

Befolgen der Warnhinweise • Befolgen Sie alle Warnhinweise und Anleitungen auf dem Gerät oder in der Benutzerdokumentation.

Keine Zusatzgeräte • Verwenden Sie keine Werkzeuge oder Zusatzgeräte, die nicht ausdrücklich vom Hersteller empfohlen wurden, da diese eine Gefahrenquelle darstellen können.

Instrucciones de seguridad • Español

Este símbolo se utiliza para advertir al usuario sobre instrucciones importantes de operación y mantenimiento (o cambio de partes) que se desean destacar en el contenido de la documentación suministrada con los equipos.

Este símbolo se utiliza para advertir al usuario sobre la presencia de elementos con voltaje peligroso sin protección aislante, que puedan encontrarse dentro de la caja o alojamiento del producto, y que puedan representar riesgo de electrocución.

Precaucion

Leer las instrucciones • Leer y analizar todas las instrucciones de operación y seguridad, antes de usar el equipo.

Conservar las instrucciones • Conservar las instrucciones de seguridad para futura consulta.

Obedecer las advertencias • Todas las advertencias e instrucciones marcadas en el equipo o en la documentación del usuario, deben ser obedecidas.

Evitar el uso de accesorios • No usar herramientas o accesorios que no sean especificamente recomendados por el fabricante, ya que podrian implicar riesgos.

Warning

Power sources • This equipment should be operated only from the power source indicated on the product. This equipment is intended to be used with a main power system with a grounded (neutral) conductor. The third (grounding) pin is a safety feature, do not attempt to bypass or disable it.

Power disconnection • To remove power from the equipment safely, remove all power cords from the rear of the equipment, or the desktop power module (if detachable), or from the power source receptacle (wall plug).

Power cord protection • Power cords should be routed so that they are not likely to be stepped on or pinched by items placed upon or against them.

Servicing • Refer all servicing to qualified service personnel. There are no user-serviceable parts inside. To prevent the risk of shock, do not attempt to service this equipment yourself because opening or removing covers may expose you to dangerous voltage or other hazards.

Slots and openings • If the equipment has slots or holes in the enclosure, these are provided to prevent overheating of sensitive components inside. These openings must never be blocked by other objects.

Lithium battery • There is a danger of explosion if battery is incorrectly replaced. Replace it only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Avertissement

Alimentations• Ne faire fonctionner ce matériel qu'avec la source d'alimentation indiquée sur l'appareil. Ce matériel doit être utilisé avec une alimentation principale comportant un fil de terre (neutre). Le troisième contact (de mise à la terre) constitue un dispositif de sécurité : n'essayez pas de la contourner ni de la désactiver.

Déconnexion de l'alimentation• Pour mettre le matériel hors tension sans danger, déconnectez tous les cordons d'alimentation de l'arrière de l'appareil ou du module d'alimentation de bureau (s'il est amovible) ou encore de la prise secteur.

Protection du cordon d'alimentation • Acheminer les cordons d'alimentation de manière à ce que personne ne risque de marcher dessus et à ce qu'ils ne soient pas écrasés ou pincés par des objets.

Réparation-maintenance • Faire exécuter toutes les interventions de réparation-maintenance par un technicien qualifié. Aucun des éléments internes ne peut être réparé par l'utilisateur. Afin d'éviter tout danger d'électrocution, l'utilisateur ne doit pas essayer de procéder lui-même à ces opérations car l'ouverture ou le retrait des couvercles risquent de l'exposer à de hautes tensions et autres dangers.

Fentes et orifices • Si le boîtier de l'appareil comporte des fentes ou des orifices, ceux-ci servent à empêcher les composants internes sensibles de surchauffer. Ces ouvertures ne doivent jamais être bloquées par des objets.

Lithium Batterie • Il a danger d'explosion s'll y a remplacment incorrect de la batterie. Remplacer uniquement avec une batterie du meme type ou d'un ype equivalent recommande par le constructeur. Mettre au reut les batteries usagees conformement aux instructions du fabricant.

Vorsicht

Stromquellen • Dieses Gerät sollte nur über die auf dem Produkt angegebene Stromquelle betrieben werden. Dieses Gerät wurde für eine Verwendung mit einer Hauptstromleitung mit einem geerdeten (neutralen) Leiter konzipiert. Der dritte Kontakt ist für einen Erdanschluß, und stellt eine Sicherheitsfunktion dar. Diese sollte nicht umgangen oder außer Betrieb gesetzt werden.

Stromunterbrechung • Um das Gerät auf sichere Weise vom Netz zu trennen, sollten Sie alle Netzkabel aus der Rückseite des Gerätes, aus der externen Stomversorgung (falls dies möglich ist) oder aus der Wandsteckdose ziehen.

Schutz des Netzkabels • Netzkabel sollten stets so verlegt werden, daß sie nicht im Weg liegen und niemand darauf treten kann oder Objekte darauf- oder unmittelbar dagegengestellt werden können.

Wartung • Alle Wartungsmaßnahmen sollten nur von qualifiziertem Servicepersonal durchgeführt werden. Die internen Komponenten des Gerätes sind wartungsfrei. Zur Vermeidung eines elektrischen Schocks versuchen Sie in keinem Fall, dieses Gerät selbst öffnen, da beim Entfernen der Abdeckungen die Gefahr eines elektrischen Schlags und/oder andere Gefahren bestehen.

Schlitze und Öffnungen • Wenn das Gerät Schlitze oder Löcher im Gehäuse aufweist, dienen diese zur Vermeidung einer Überhitzung der empfindlichen Teile im Inneren. Diese Öffnungen dürfen niemals von anderen Objekten blockiert werden.

Litium-Batterie • Explosionsgefahr, falls die Batterie nicht richtig ersetzt wird. Ersetzen Sie verbrauchte Batterien nur durch den gleichen oder einen vergleichbaren Batterietyp, der auch vom Hersteller empfohlen wird. Entsorgen Sie verbrauchte Batterien bitte gemäß den Herstelleranweisungen.

Advertencia

Alimentación eléctrica • Este equipo debe conectarse únicamente a la fuente/tipo de alimentación eléctrica indicada en el mismo. La alimentación eléctrica de este equipo debe provenir de un sistema de distribución general con conductor neutro a tierra. La tercera pata (puesta a tierra) es una medida de seguridad, no puentearia ni eliminaria.

Desconexión de alimentación eléctrica • Para desconectar con seguridad la acometida de alimentación eléctrica al equipo, desenchufar todos los cables de alimentación en el panel trasero del equipo, o desenchufar el módulo de alimentación (si fuera independiente), o desenchufar el cable del receptáculo de la pared.

Protección del cables de alimentación • Los cables de alimentación eléctrica se deben instalar en lugares donde no sean pisados ni apretados por objetos que se puedan apoyar sobre ellos.

Reparaciones/mantenimiento • Solicitar siempre los servicios técnicos de personal calificado. En el interior no hay partes a las que el usuario deba acceder. Para evitar riesgo de electrocución, no intentar personalmente la reparación/mantenimiento de este equipo, ya que al abrir o extraer las tapas puede quedar expuesto a voltajes peligrosos u otros riesgos.

Ranuras y aberturas • Si el equipo posee ranuras o orificios en su caja/alojamiento, es para evitar el sobrecalientamiento de componentes internos sensibles. Estas aberturas nunca se deben obstruir con otros objetos.

Batería de litio • Existe riesgo de explosión si esta batería se coloca en la posición incorrecta. Cambiar esta bateria únicamente con el mismo tipo (o su equivalente) recomendado por el fabricante. Desachar las baterías usadas siguiendo las instrucciones del fabricante.

Extron® Warranty

Extron Electronics warrants this product against defects in materials and workmanship for a period of three years from the date of purchase. In the event of malfunction during the warranty period attributable directly to faulty workmanship and/or materials, Extron Electronics will, at its option, repair or replace said products or components, to whatever extent it shall deem necessary to restore said product to proper operating condition, provided that it is returned within the warranty period, with proof of purchase and description of malfunction to:

USA, Canada, South America, and Central America:
Extron USA
1001 East Ball Road
Anaheim, CA 92805
U.S.A.

Europe, Africa, and the Middle East:
Extron Europe
Hanzeboulevard 10
3825 PH Amersfoort
The Netherlands

Asia:
Extron Asia
135 Joo Seng Road #04-01
PM Industrial Bldg.
Singapore 368363
Singapore

Japan:
Extron Japan
Kyodo Building, 16 Ichibancho
Chiyoda-ku, Tokyo 102-0082
Japan

China:
Extron China
686 Ronghua Road
Songjiang District
Shanghai 201611
China

Middle East:
Extron Middle East
Dubai Airport Free Zone
F12, PO Box 293666
United Arab Emirates, Dubai

This Limited Warranty does not apply if the fault has been caused by misuse, improper handling care, electrical or mechanical abuse, abnormal operating conditions, or if modifications to the product that were not authorized by Extron.

NOTE: If it has been determined that the product is defective, please call Extron and ask for an Applications Engineer at (714) 491-1500 (USA), 31.33.453.4040 (Europe), 65.6383.4400 (Asia), or 81.3.3511.7655 (Japan) to receive an RA# (Return Authorization number). This will begin the repair process as quickly as possible.

Units must be returned insured, with shipping charges prepaid. If not insured, you assume the risk of loss or damage during shipment. Returned units must include the serial number and a description of the problem, as well as the name of the person to contact in case there are any questions.

Extron Electronics makes no further warranties either expressed or implied with respect to the product and its quality, performance, merchantability, or fitness for any particular use. In no event will Extron Electronics be liable for direct, indirect, or consequential damages resulting from any defect in this product even if Extron Electronics has been advised of such damage.

Please note that laws vary from state to state and country to country, and that some provisions of this warranty may not apply to you.

安全须知 • 中文

这个符号提示用户该设备用户手册中有重要的操作和维护说明。

这个符号警告用户该设备机壳内有暴露的危险电压，有触电危险。

注意

阅读说明书 • 用户使用该设备前必须阅读并理解所有安全和使用说明。

保存说明书 • 用户应保存安全说明书以备将来使用。

遵守警告 • 用户应遵守产品和用户指南上的所有安全和操作说明。

避免追加 • 不要使用该产品厂商没有推荐的工具或追加设备，以避免危险。

警告

电源 • 该设备只能使用产品上标明的电源。 设备必须使用有地线的供电系统供电。 第三条线（地线）是安全设施，不能不用或跳过。

拔掉电源 • 为安全地从设备拔掉电源，请拔掉所有设备后或桌面电源的电源线，或任何接到市电系统的电源线。

电源线保护 • 妥善布线， 避免被踩踏，或重物挤压。

维护 • 所有维修必须由认证的维修人员进行。 设备内部没有用户可以更换的零件。为避免出现触电危险不要自己试图打开设备盖子维修该设备。

通风孔 • 有些设备机壳上有通风槽或孔，它们是用来防止机内敏感元件过热。 不要用任何东西挡住通风孔。

锂电池 • 不正确的更换电池会有爆炸的危险。 必须使用与厂家推荐的相同或相近型号的电池。 按照生产厂的建议处理废弃电池。

FCC Class A Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. Front Panel Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. The Class A limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Front Panel Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

NOTE: This unit was tested with shielded cables on the peripheral devices. Shielded cables must be used with the unit to ensure compliance with FCC emissions limits.

Contents

Introduction

About this Manual

This setup guide allows you to easily and quickly set up and configure the Extron® MPX 866 A Media Presentation Matrix Switcher. Step by step instructions show you how to connect the hardware. It also shows you how to perform basic operations, use both the front panel controls and selected Simple Instruction Set (SIS™) commands. This guide also shows you how to load and start up the Windows®-based Matrix Switchers Control Program. Lastly, this guide shows you how to connect to the built-in HTML pages, which you can use to operate the switcher.

About the MPX 866 A

A matrix switcher distributes any input to any combination of outputs and can route multiple input/output configurations simultaneously.

The MPX 866 A media presentation matrix switcher (see figure 1 on page 2) combines three matrix switchers with the following switching capabilities in a single product:

- An 8-input by 6-output VGA matrix switcher, comprising the computer video group
- A 6-input by 6-ouput S-video and composite video matrix switcher, comprising the low resolution video group
- A 14-input by 6-output primary audio matrix switcher, comprising the program audio group

NOTE: Video ties can only be made within the same group (computer or low resolution).
Audio ties can be made only to outputs in the computer/audio group (outputs 1 through 6).

Any video input within one of the two groups, computer video and low resolution video, can be switched to any one or all outputs within that same group.

The 14 inputs in the primary audio group can be switched along with inputs from either video group (although audio ties can only be made to the computer/audio group).

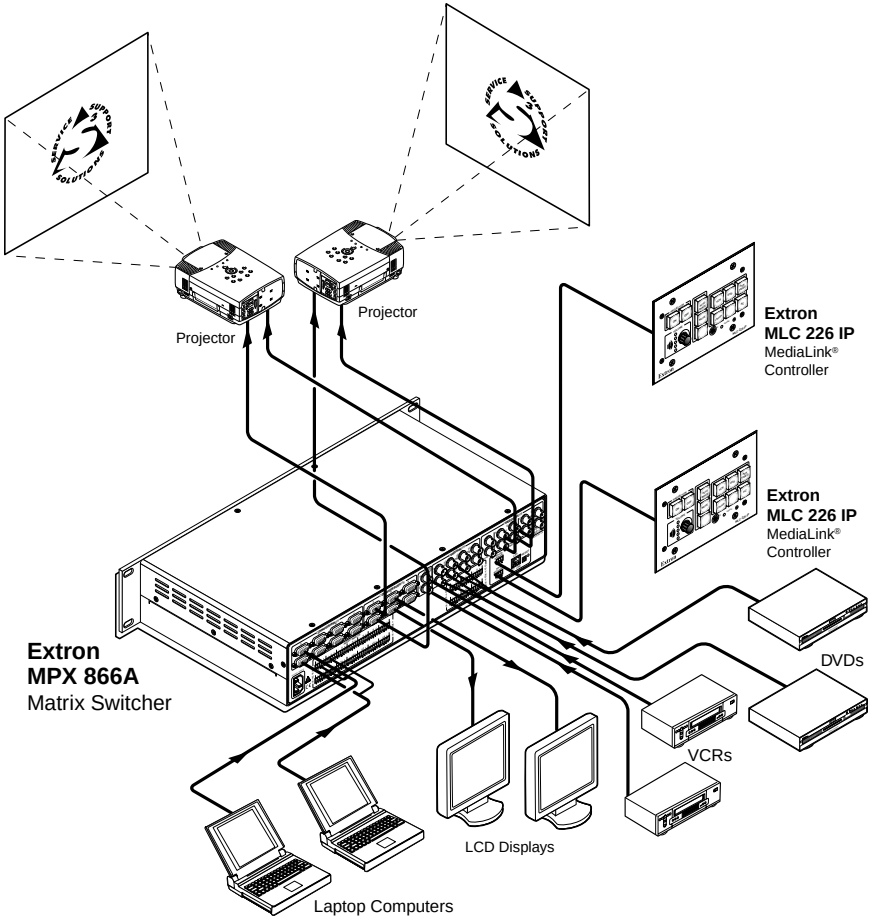


Figure 1. Typical MPX Plus 866 A Application

Installation

Rear Panel

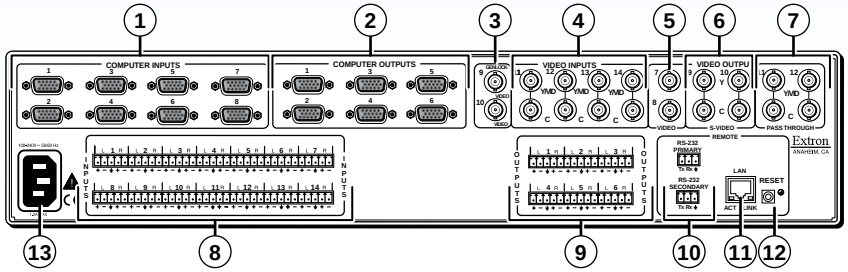


Figure 2. Rear Panel Features

CAUTION: Turn off power to the input and output devices, and disconnect their power cords.

Computer Video Group

① **RGB video inputs** — Connect the analog computer-video sources to the Computer Input 1 through Computer Input 8 15-pin HD female connectors.

② **RGB video outputs** — Connect RGBHV video displays to the Computer Output 1 through Computer Output 6 15-pin HD female connectors.

Low Resolution Video Group

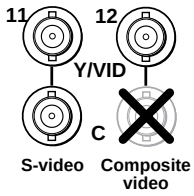
③ **Video Input 9 and Video Input 10 (composite video inputs)** — Connect composite video sources to these female BNC connectors.

NOTE: Video Input 9 serves as a timing reference for all other low resolution video group inputs. If one of the inputs is synced to a blackburst generator, connect that source to Input 9.

④ **Input 11 through Input 14** —

S-video inputs — Connect an S-video source to a pair of female BNC connectors. Connect luma (Y) and chroma (C) as shown at right.

Composite video inputs — Connect a composite video source to the Video (top) connector in a pair of female BNC connectors as shown at right.



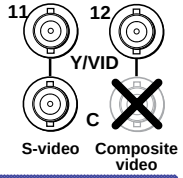
⑤ **Composite video outputs (Output 7 and Output 8) —** Connect composite video displays to these female BNC connectors.

> **NOTE:** If the input tied to Output 7 or Output 8 is S-video, the switcher encodes the input to composite video. If the tied input is composite video, the switcher passes it through to the output with no processing.

⑥ **S-video outputs (Output 9 and Output 10) —** Connect S-video displays to these female BNC connectors.

> **NOTE:** If the input tied to Output 9 or Output 10 is composite video, the switcher decodes the input to S-video. If the tied input is S-video, the switcher passes it through to the output with no processing.

⑦ **Pass-through outputs (Output 11 and Output 12) —** Connect S-video or composite video displays to these female BNC connectors. Connect S-video Y and C or composite video as shown at right.



> **NOTE:** The switcher passes the tied input to these outputs with no signal processing; an S-video input is output as S-video, a composite video input is output as composite video.

Audio Inputs and Outputs

⑧ **Balanced and unbalanced audio inputs —** Connect balanced or unbalanced stereo audio inputs to these 5-pole captive screw connectors (see figure 3 for wiring).

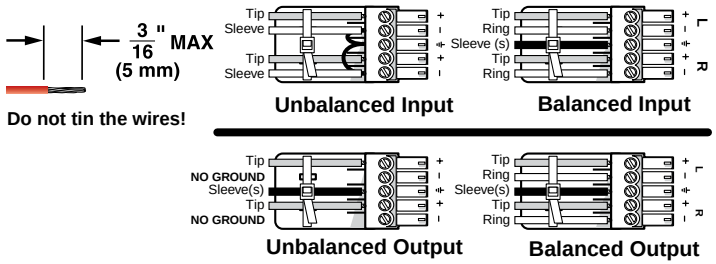


Figure 3. Audio Input Connector Wiring

⑨ **Local audio outputs —** Connect balanced or unbalanced stereo audio output devices to these 5-pole captive screw connectors (see figure 3 for wiring).

> **CAUTION:** For unbalanced audio, connect the sleeves to the ground contact. DO NOT connect the sleeves to the negative (-) contacts).

Remote Control Ports

⑩ **RS-232 connectors —** Connect one or two host devices to these 3-pole captive screw connectors for serial RS-232 (see figure 4).

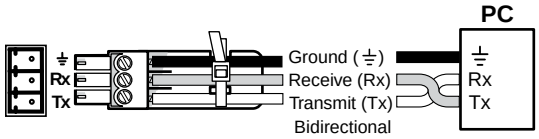


Figure 4. RS-232 Connector

> **NOTES:**
> - The two rear panel ports are hardwired for RS-232 only.
> - The RS-232 Secondary port is active only if the front panel Configuration port is not in use. If a front panel configuration connection is made, the rear panel RS-232 Secondary port becomes inactive and the front panel Configuration port is active.
> - See figure 3 for wire stripping information.

⑪ **LAN port —** If desired, connect a network WAN or LAN hub, a control system, or computer to the Ethernet RJ-45 port.

- **Network connection —** Wire as a patch (straight) cable.
- **Computer or control system connection —** Wire the interface cable as a crossover cable.

The factory default IP address is 192.168.254.254.

⑫ **Reset button and LED —** Initiates four levels of reset of the matrix switcher. For different reset levels, press and hold the button while the switcher is running or while you power up the switcher. See the *MPX 866 A User Guide*, available on the Extron DVD or at www.extron.com.

⑬ **Power —** Plug the switcher into a grounded AC source.

Front Panel Configuration Port

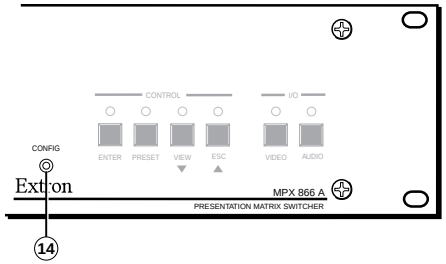


Figure 5. Front Panel Configuration Port

⑭ **Configuration port —** If desired, connect a control system or computer to the front panel Configuration (RS-232) port. Use an optional 9-pin D to 2.5 mm mini jack TRS RS-232 cable, part number **70-335-01**.

Front Panel Operations

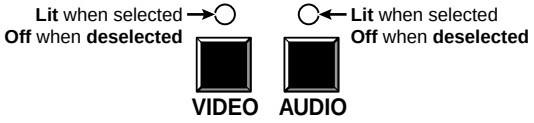
In this chapter, ○ = lit, ● = unlit, and ☼ = blinking.

Creating a Tie

NOTES:
- When creating video and audio ties in the low resolution video group, audio must be redirected (tied to a different, but corresponding, output than the video) because there are only audio outputs 1 through 6. In this case, the audio is tied to an output in the computer video/audio group.
  - If the video is tied to output 7, the audio is tied to output 1.
  - If the video is tied to output 8, the audio is tied to output 2.
  - If the video is tied to output 9, the audio is tied to output 3.
  - If the video is tied to output 10, the audio is tied to output 4.
  - If the video is tied to output 11, the audio is tied to output 5.
  - If the video is tied to output 12, the audio is tied to output 6.
- If you select an input in the low resolution video input group (inputs 9 through 14), you can only select outputs in the low resolution video output group (outputs 7 through 12). The switcher automatically redirects the audio. This restriction applies to tying and untying.

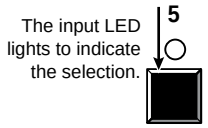
Creating a Tie in the Computer Video Group

1. Press and release the Esc button to clear any input LED, output LED, or control LEDs that may be lit.
2. Press and release the Video and/or Audio I/O button(s) to select or deselect video and/or audio as desired.



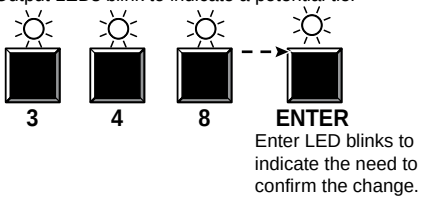
NOTE: Audio (RS-232) or video can be broken away (tied by itself) by selecting only the Video button or only the Audio button.

3. Press and release the desired input button.



4. Press and release the desired output button(s).

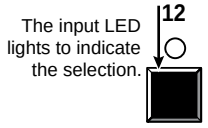
Output LEDs blink to indicate a potential tie.



5. Press and release the Enter button. All LEDs turn off.

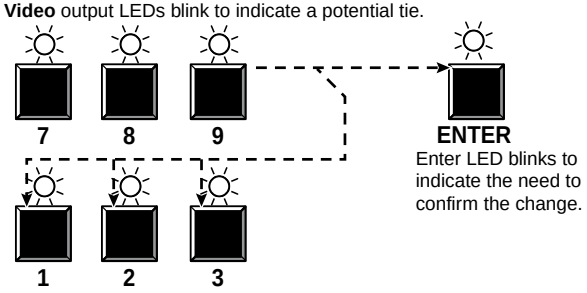
Creating a Tie in the Low Resolution Video Group

1. Press and release the Esc button to clear any input LED, output LED, or control LEDs that may be lit.
2. Press and release the desired input button.



3. Press and release the desired output button(s).

Video output LEDs blink to indicate a potential tie.



Computer output LEDs blink to indicate a potential tie.

4. Press and release the Enter button. All button indicators turn off.

Viewing Ties (and Muting Outputs)

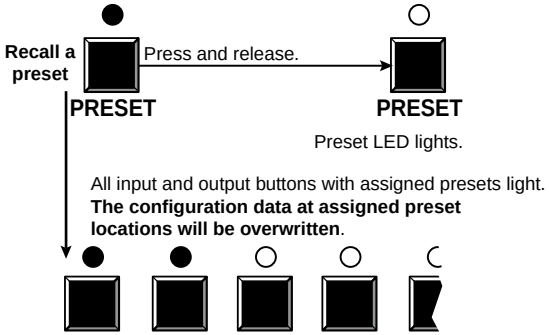
1. Press the View button. The output LEDs light for outputs that have no ties established.

> **NOTES:**
> - If an output button blinks, that output is muted. *To toggle mute on and off*, press and hold the output button for 2 seconds.
> - Video and audio can both be muted, but in separate operations; one and then the other. Press and release the Video button and the Audio button to select each for muting or unmuting.

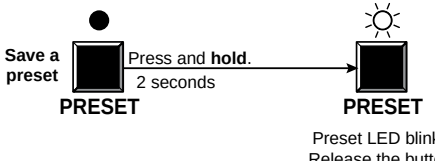
2. Press an input button. The LEDs for all tied outputs light.
3. Press an output button. The LEDs for the tied input and all tied outputs light.
4. Press the View button. All input and output LEDs return to an unlit state.

Saving or Recalling a Preset

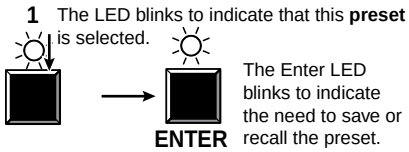
1. **Save a preset** — Press and hold the Preset button until the Preset LED flashes.



Recall a preset — Press and release the Preset button.



2. Press and release the desired input or output button.



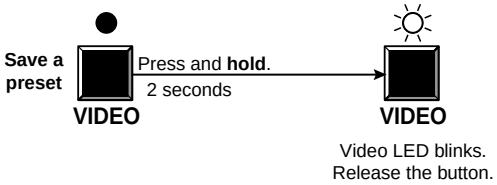
3. Press and release the Enter button.

Selecting S-video or Composite Video

Low resolution video inputs 11 through 14 are individually configurable as either composite video or S-video. View and change this variable from the front panel as follows:

> **NOTE:** The input video format is protected when front panel Lock mode 2 is selected. You can view the selected form of the input in Lock mode 2 but you cannot change it from the front panel (see "**Setting the Front Panel Locks (Executive modes)**").

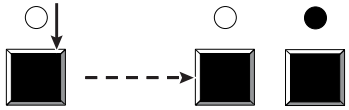
1. Press and **hold** the Video button until it flashes.



Video LED blinks.
Release the button.

2. Press the input button for the input to be configured.

The input LED lights to indicate the selection.



The lit Output LED 7 or 8 indicates the video format as follows:

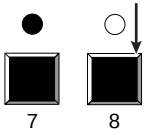
7 — Composite 8 — S-video

> **NOTE:** The input video format is protected when front panel Lock mode 2 is selected. You can view the selected formats, but you cannot change them. If you try to perform step **3**, the action is ignored.

3. Press and release the Video Output 7 or 8 button to select the associated video format.

Press and release the Video Output button to change the **video format** as follows:
7 — Composite 8 — S-video

In this example, the input is set to S-video.



4. Press and release the Video button to exit the Video mode.

Setting the Front Panel Locks (Executive Modes)

The matrix switcher has three levels of front panel security lock that limit the operation of the switcher from the front panel. The three levels are:

- **Lock mode 0** — The front panel is completely unlocked.
- **Lock mode 1** — All changes are locked from the front panel (except for setting Lock mode 2). Some functions can be viewed.
- **Lock mode 2** — Basic functions are unlocked. Advanced features are locked and can be viewed only.

  Basic features consist of:

  - Making ties
  - Saving and recalling presets
  - Setting input audio gain and attenuation
  - Changing Lock modes

  Advanced features consist of:

  - Saving presets
  - Setting the video format for inputs 11 through 14
  - Setting video and audio output mutes
  - Setting audio output volume

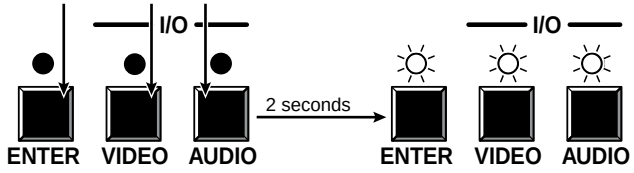
> **NOTE:** The switcher is shipped from the factory in Lock mode 2.

Selecting Lock Mode 2 or Toggling Between Mode 2 and Mode 0

> **NOTE:** If the switcher is in Lock mode 0 or mode 1, this procedure selects mode 2.
> If the switcher is in Lock mode 2, this procedure selects mode 0 (unlocks the switcher).

Toggle the lock on and off by pressing and holding the Enter button, the Video button, and the Audio button simultaneously for approximately 2 seconds.

Press and **hold** the Enter, Video, and Audio buttons simultaneously to turn on Lock mode 2 or to toggle between mode 2 and mode 0.



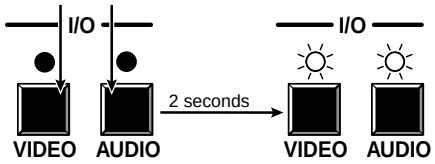
The Enter, Video, and Audio LEDs blink **twice** to indicate the mode change.
Release the buttons.

Selecting Lock Mode 2 or Toggling Between Mode 2 and Mode 1

> **NOTE:** If the switcher is in Lock mode 0 or mode 1, this procedure selects mode 2.
> If the switcher in in Lock mode 2, this procedure selects mode 1.

Toggle the lock on and off by pressing and holding the Video button and the Audio button simultaneously for approximately 2 seconds.

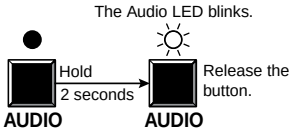
Press and **hold** the Video and Audio buttons simultaneously to turn on Lock mode 2 or to toggle between mode 1 and mode 2.

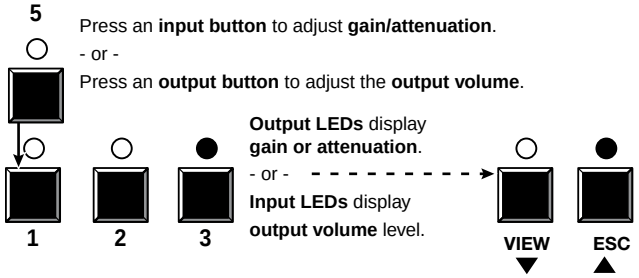


The Video and Audio LEDs blink **twice** to indicate the mode change. Release the buttons.

Viewing and Adjusting the Audio Level

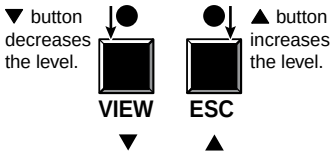
1. Press and hold the Audio button until the Audio LED flashes.
2. Press an input or output button (see the *MPX 866 A User Guide* to read the displayed value).





For the input level (gain/attenuation), the View and Esc LEDs display the polarity (attenuation [▼] or gain [▲]).

3. Increase or decrease the level or volume by pressing the Esc (▲) or View (▼) buttons.



4. Press and release the Audio button to exit.

Remote Control

This section describes using the remote control features of the MPX 866 A to control the device. Topics that are covered include:

- Selected SIS Commands
- Installing and Starting the Control Program
- Accessing the HTML Pages

Selected SIS Commands

You can use Simple Instruction Set (SIS) commands for operation and configuration of the switchers. You can run these commands from a PC connected to any of the switcher's three serial ports or the Ethernet port (see item ⑩, item ⑭, and item ⑪, on page 5 for connection information).

Establishing a Network (Ethernet) Connection

> **NOTE:** The first time you connect to the switcher via the LAN port, you may need to change the default settings (IP address, subnet mask, and [optional] administrator name and password) of the switcher (see "Configuring for Network Communication" on page 24 for details).

Establish a network connection as follows:

1. Open a TCP socket to port 23 using the IP address of the switcher.

> **NOTE:** The factory default IP address is 192.168.254.254.

The switcher responds with a copyright message including the name, firmware version, and part number of the product, and the current date and time.

> **NOTES:**
> - If the switcher is not password-protected, the device is now ready to accept SIS commands.
> - If the switcher is password-protected, a `Password` prompt appears.

2. If necessary, enter the appropriate password.

If the password is accepted, the switcher responds with `Login User` or `Login Administrator`.

If the password is not accepted, the `Password` prompt reappears.

Connection timeouts

The Ethernet link times out and disconnects after a designated period of time of no communications. By default, this timeout value is set to 5 minutes but the value can be changed (see the **Configure port timeout SIS command** on page 21).

> **NOTE:** Extron recommends leaving the default timeout at 5 minutes and periodically issuing the Query (Q) command to keep the connection active or disconnecting the socket and reopening the connection when necessary.

Number of connections

A switcher can have up to 200 simultaneous TCP connections, including all HTTP sockets and Telnet connections. When the connection limit is reached, the switcher accepts no new connections until some have been closed. No error message or indication is given that the connection limit has been reached. To maximize the performance of your switcher, keep the number of connections low and close unnecessary open sockets.

Verbose mode

Telnet connections to a switcher can be used to monitor for changes that occur on the switcher, such as front panel operations and SIS commands from other Telnet sockets or a serial port. For a Telnet session to receive change notices from the switcher, the Telnet session must be in verbose mode 1 or 3 (see the **Set verbose mode SIS command** on page 21). In verbose mode 3, the Telnet socket reports changes using messages that resemble SIS command responses.

Host-to-Switcher instructions

The switcher accepts SIS commands through its serial port, its USB port, or its LAN port. SIS commands consist of one or more characters per command field. They do not require any special characters to begin or end the command character sequence. Each switcher response to an SIS command ends with a carriage return and a line feed (CR/LF = ↵), which signals the end of the response character string. A string is one or more characters.

> **NOTE:** The table that begins on the next page is a partial list of SIS commands. For a complete listing, refer to the *MPX 866 A User Guide*.

Command/Response Table for SIS Commands

Command	ASCII Command (Host to Unit)	Response (Unit to Host)	Additional Description
Create ties			

NOTES:
- Video ties cannot be made between the computer video group and the low resolution video group.
- Audio ties can only be made to the computer/audio output group (outputs 1 through 6).
- Video and audio ties between the low resolution video input group and the low resolution video oputput group are always made with the audio redirected. In such an operation, the switcher automtatically ties the audo to an output in the computer/audio outputs group (outputs 1 through 6) as follows:
  - If video is tied to output 7, audio is tied to output 1.
  - If video is tied to output 8, audio is tied to output 2.
  - If video is tied to output 9, audio is tied to output 3.
  - If video is tied to output 10, audio is tied to output 4.
  - If video is tied to output 11, audio is tied to output 5.
  - If video is tied to output 12, audio is tied to output 6.
- Commands can be entered back-to-back in a string, with no spaces. For example: 1*1!02*02&003*003%.
- The matrix switchers support 1-, 2-, and 3-digit numeric entries (1*1!, 02*02&, or 003*003%).
- The the **& tie** command for RGB and the **% tie** command for video can be used interchangeably.
- The **& read tie** command for RGB and the **% read tie** command for video can be used interchangeably.

Tie input X1 to output X2, video and audio	X1*X2!	Out X2 •In X1 •All ↵ *(within computer video group)* *— or —* Qik ↵ *(within low resolution video group [because of audio redirection])*	Tie input X1 video and audio to output X2.
Example 1 (see Notes, above):	1*3!	Out03•In01•All ↵	Tie input 1 video and audio to output 3.
Example 2:	11*9!	Qik ↵	Tie input 11 video and audio to output 9.

NOTE: X1 = Input number 00 – maximum number of inputs for your configuration (00 = untied)
X2 = Output number 01 – 12

Command	ASCII Command (Host to Unit)	Response (Unit to Host)	Additional Description
Tie input X1 to output X2, computer only	X1*X2&	OutX2•InX1•RGB↵	Tie input X1 video to output X2. Audio is broken away.
Example (see Notes, above):	5*4&	Out04•In05•RGB↵	Tie input 5 RGB to output 4.
Tie input X1 to output X2, video only	X1*X2%	OutX2•InX1•Vid↵	Tie input X1 video to output X2. Audio is broken away.
Example (see Notes, above):	9*7%	Out07•In09•Vid↵	Tie input 9 video to output 7.
Tie input X1 to output X2, audio only	X1*X2$	OutX2•InX1•Aud↵	Tie input X1 audio to output X2. Audio is broken away.
Example:	12*4$	Out04•In12•Aud↵	Tie input 12 audio to output 4.
Read computer video output tie	X2&	X1↵	Input X1 RGBHV is tied to output X2.
Read video output tie	X2%	X1↵	Input X1 video is tied to output X2.
Read audio output tie	X2!	X1↵	Input X1 audio is tied to output X2.
Set input format			
NOTE: The only valid input (X1) numbers for the Set and Read input format commands are 11 through 16.			
Set input video format	X1*X3\	TypX1*X3↵	Set the video format to X3 for input X1.
Example	11*1\	Typ11*1↵	Set input 11 to composite video.
Read input video format	X1\	TypX1*X3↵	Show the video format of input X1.

NOTE:
X1 = Input number — 00 – maximum number of inputs for your configuration (00 = untied)
X2 = Output number — 01 – 12
X3 = Input video format — 1 = composite video 2 = S-video

Command	ASCII Command (Host to Unit)	Response (Unit to Host)	Additional Description
Video and audio mute commands			
RGB or video mute	X2*1B	VmtX2*1↵	Mute output X2 video (no video is output).
RGB or video unmute	X2*0B	VmtX2*0↵	Unmute output X2 video (video is output).
Read RGB or video mute	X2B	X3↵	1 = muted, 0 = not muted.
Global RGB or video mute	1*B	Vmt1↵	Mute all video outputs.
Global RGB or video unmute	0*B	Vmt0↵	Unmute all video outputs.
Audio mute	X2*1Z	AmtX2*1↵	Mute output X2 audio (no audio is output).
Audio unmute	X2*0Z	AmtX2*0↵	Unmute output X2 audio (audio is output).
Read audio mute	X2Z	X3↵	1 = muted, 0 = not muted.
Global audio mute	1*Z	Amt1↵	Mute all audio outputs.
Global audio unmute	0*Z	Amt0↵	Unmute all audio outputs.
View output mutes	EscVM←	$X4^1X4^2$ ... $X4^{12}$↵	Each X3 response is the mute status of an output, starting from output 1.
Example:	EscVM↵	Mut023010000000↵	Output 2 audio is muted, output 3 video and audio are muted, and output 5 video is muted.
NOTE: The "Mut" portion of the response appears only when the switcher in sin Verbose mode 1 or 3. See the **Verbose mode command** on page 21.			

NOTE:
X2 = Output number — 01 – 12
X3 = Video/audio mute: — 0 = no mutes, 2 = audio mute, 1 = video mute, 3 = video and audio mute
X4 = Mute — 0 = not muted, 1 = muted

Command	ASCII Command (Host to Unit)	Response (Unit to Host)	Additional Description
Audio input gain and attenuation			
NOTE: The set gain (G) and set attenuation (g) commands **are** case sensitive. The increment, decrement, and read commands **are not** case sensitive.			
Set input audio level to +dB (gain) value	X1*X6G	InX1•AudX7↵	
Example:	1*2G	In01•Aud+02↵	Set input 1 audio gain to +2 dB.
Set input audio to –dB (attenuation) value	X1*X8g	InX1•AudX7↵	
Increment level	X1+G	InX1•AudX7↵	Increase gain by 1 dB.
Example:	5+G	In01•Aud+03↵	Increase audio input 5 level from +2 dB to +3 dB.
Decrement level	X1–G	InX1•AudX7↵	Decrease gain by 1dB.
Example:	7–G	In07•Aud–09↵	Decrease audio input 7 level from –8 dB to –9 dB.
Read input level	X1G	X7↵	

NOTE:
X1 = Input number 01 – 14
X6 = Audio gain 0 – 24 (1 dB per step)
X7 = Numeric dB value –18 to +24 (45 steps of gain or attenuation) (default = 0 dB)
X8 = Audio attenuation 1 – 18 (1 dB per step)

Command	ASCII Command (Host to Unit)	Response (Unit to Host)	Additional Description
Audio output volume			
Set the audio volume to a specific value	X2*X9V	OutX2•VolX9↵	
Example:	1*50v	Out01•Vol50↵	Set output 1 volume to 79%.
Increment volume	X2+V	OutX2•VolX9↵	Increase volume by 1 step.
Example:	1+V	Out01•Vol51↵	
Decrement volume	X2-V	OutX2•VolX9↵	Decrease volume by 1 step.
Read volume	V	X9↵	
Save and recall presets			
NOTE: If you try to recall a preset that is not saved, the matrix switcher responds with the error code E11.			
Save current configuration as a global preset	X10,	SprX10↵	Command character is a comma.
Example:	9,	Spr09↵	Save current ties as preset 9.
Recall a global preset	X10.	RprX10↵	Command character is a period.
Example:	5.	Rpr05↵	Recall preset 5, which becomes the current configuration.

NOTE:
X2 = Output number 01 – 06
X9 = Volume adjustment range 00 – 64 (1 dB per step except for 0-to-1, which is 22 dB) (default = 64 [0 dB])
X10 = Global ties preset or partial preset number 00 - 32

Command	ASCII Command (Host to Unit)	Response (Unit to Host)	Additional Description
Front panel locks (Executive modes)			
NOTE: See "Setting the Front Panel Front Panel Locks (Executive Modes)" on page 11 for more detailed descriptions of the lock modes.			
Lock all front panel functions	1X	Exe1↵	Enable Lock mode 1.
Lock advanced front panel functions	2X	Exe2↵	Enable Lock mode 2.
Unlock all front panel functions	0X	Exe0↵	Enable Lock mode 0.
View lock status	X	X11↵	
Information requests			
Information request	I	V14X12•A14X12↵	V14X12 is the video matrix size. A14X12 is the audio matrix size.
Request part number	N	60-825-01↵	
Query controller firmware version	Q	X12↵	
Example:	Q	1.23↵	The factory-installed controller firmware version is 1.23 (sample value only).

NOTE: X11 = Lock mode 0, 1, or 2
X12 = Firmware version number to second decimal place (*x.xx*)

Command	ASCII Command (Host to Unit)	Response (Unit to Host)	Additional Description
IP setup			
Set IP address	EscX13CI←	IpiX13↵	
Read IP address	EscCI←	X13↵	
Set subnet mask	EscX13CS←	IpsX13↵	
Read subnet mask	EscCS←	X13↵	
Set gateway IP address	EscX13CG←	IpgX13↵	
Read gateway IP address	EscCG←	X13↵	
Set DHCP on or off	EscX14DH←	IdhX14↵	
Read DHCP on/off status	EscDH←	X14↵	
Set verbose mode	EscX15CV←	VrbX15↵	
Read verbose mode	EscCV←	X15↵	
Configure current port timeout	Esc0*X16TC←	Pti0*X16↵	
Read current port timeout	EscOTC←	X16↵	
Configure global IP port timeout	Esc1*X16TC←	Pti1*X16↵	
Read global IP port timeout	Esc1TC←	X16↵	

NOTE:
X13 = IP address ###.###.###.###
X14 = DHCP 0 = off 1 = on
X15 = Verbose mode 0 = clear/none (default for Telnet connection)
1 = verbose mode (default for RS-232/RS-422 connection)
2 = tagged responses for queries
3 = verbose mode and tagged for queries
X16 = Port timeout interval 1 (= 10 seconds) - 65000 (default is 30 = 300 seconds = 5 minutes)

Installing and Starting the Control Program

Another way to operate the switcher is via the Windows® Matrix Switchers Control Program. This program is contained on the Extron Software Products DVD (included with the switcher). Run this program on a PC connected to to any of the switcher's three serial ports or the Ethernet port (see item ⑩, item ⑭, and item ⑪ on page 5 for connection information. The program must be installed on a Windows-based computer and cannot be run from the DVD.

NOTE: For details on operating the program, see the "Matrix Software" section in the *MPX 866 A User Guide*.

Installing the Program

1. Insert the DVD into the drive. The Extron software DVD window should appear automatically.

NOTE: If the window does not open automatically, run Launch.exe from the DVD.

2. Click the **Software** tab.

3. Scroll to the Matrix Switchers program and click **Install**.

4. Follow the on-screen instructions. The installation program creates a `C:\Program Files\Extron\Matrix_Switchers` directory and an "Extron Electronics\Matrix Switchers" group folder. It installs the following four programs:

   - `MATRIX Switcher + Control Program`
   - `MATRIX Switcher + Help`
   - `Uninstall MATRIX Switcher`
   - `Check for Matrix Updates`

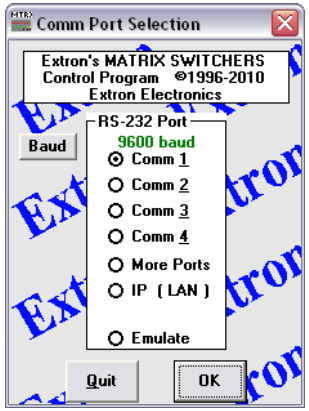
First-time LAN Port Connection Considerations

When you connect your PC to the switcher via the LAN port for the first time, you may change the default settings (IP address, subnet mask, and [optional] administrator name and password) on the controller. See "Configuring for Network Communication" on page 24 for details.

Starting the Program

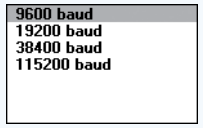
1. Click **Start** > **Programs** > **Extron Electronics** > **Matrix Switchers** > **MATRIX Switcher + Control Pgm**.

   The `Comm Port Selection` window appears.



2. Choose the comm (serial) port that is connected to the switcher or **IP [LAN]**.

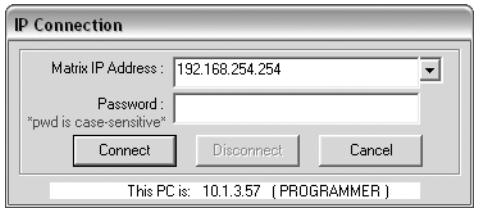
NOTE: For a comm port, check the baud rate displayed in the `Comm Port Selection` window. If you need to change the baud rate, click the **Baud** button and double-click the desired baud rate.



Click **OK**.

If you selected a serial port in step 2, the Matrix Switchers Control Program is ready for operation.

3. **If you selected `IP [LAN]` in step 2**, the IP Connection window appears.



   a. Examine the `Matrix IP Address` field, which displays the last Matrix IP address entered.

      If necessary, enter the correct IP address in the field.

      NOTE: 192.168.254.254 is the factory-specified default value for this field.

   b. If the switcher is password-protected, enter the appropriate administrator or user password in the `Password` field.

   c. Click **`Connect`**. The Matrix Switchers Control Program is ready for operation.

Accessing the HTML Pages

Another way to configure and operate the switcher is via its factory-installed HTML pages, which are always available and cannot be erased or overwritten. The HTML pages that are pre-loaded on the switcher are accessible through its LAN port, connected via a LAN or WAN, using a web browser such as Microsoft Internet Explorer® (see item (11) on page 9, for connection information).

Configuring for Network Communication

The first time you connect a PC to a switcher via its LAN port, you may need to temporarily change the IP settings of the PC in order to communicate with the controller. Then you must change the default settings of the controller (IP address, subnet mask, and [optional] administrator name and password) in order to use the unit on an intranet (LAN) or on the Internet. After you have set up the matrix switcher for network communication, you can reset the PC to its original network configuration.

NOTE: The computer and the switcher must both be connected to the same subnet on a LAN (using a straight-through cable). Alternatively, you can use a crossover Ethernet cable to connect the controller directly to the computer.

Use the ARP command to configure the IP address as follows:

1. Obtain a valid IP address for the matrix switcher from the network administrator.

2. Obtain the MAC address (UID #) of the switcher from the label on its rear panel. The MAC address should have this format: 00-05-A6-*xx-xx-xx*.

3. If the switcher has never been configured and is still set for factory defaults, go to step **4**. If not, perform a mode 4 system reset. For detailed information on reset modes, see "Reset Operations" in the *MPX 866 A User Guide*.

   NOTE: The switcher must be configured with the factory default IP address (192.168.254.254) before the ARP command is executed, as described below.

4. At the PC, access the MS-DOS® command prompt, then enter the `arp –s` command. Type in the desired new IP address for the unit (obtained in step **1**) and the MAC address of the unit (from the rear panel of the unit). For example:
   `arp –s 10.13.197.7 00-05-A6-03-69-B0`
   and then press <Enter>.

   After receiving the `arp -s` command, the controller changes to the new address and can respond to the ping requests, as described in step **5**.

   NOTE: You must ping the matrix switcher as shown in step **5** for the IP address change to take place. The response should show the new IP address, as shown in the following figure.

5. Execute a ping command by entering `ping` followed by a space and the new IP address at the command prompt. For example:
   `ping 10.13.197.7`

```
C:\>ping 10.13.197.7

Pinging 10.13.197.7 with 32 bytes of data:

Reply from 10.13.197.7: bytes=32 time<10ms TTL=128
Reply from 10.13.197.7: bytes=32 time<10ms TTL=128
Reply from 10.13.197.7: bytes=32 time<10ms TTL=128
Reply from 10.13.197.7: bytes=32 time<10ms TTL=128

Ping statistics for 10.13.197.7:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

   NOTE: You can reconnect using either Telnet or a web browser to verify that the update was successful.

6. After verifying that the IP address change was successful, enter and issue the "arp –d" command at the DOS prompt. For example:

   `arp –d 10.13.197.7` removes 10.13.197.7 from the ARP table
   or
   `arp –d*` removes all static IP addresses from the ARP table.

Loading the Start-up Page

NOTES:
- If your Ethernet connection to the matrix switcher is unstable, try turning off the proxy server in your web browser. In Microsoft Internet Explorer, click **Tools** > **Internet Options** > **Connections** > **LAN Settings**, uncheck the **Use a proxy server...** box, and then click **OK**.
- For details on operating the switcher via HTML pages, see the "HTML Operation" section in the *MPX 866 A User Guide*.

1. Start the web browser program.
2. Click in the Address field.
3. Enter the Matrix IP address in the Address field.

   NOTE: 192.168.254.254 is the factory-specified default value for this field.

4. Press the keyboard <Enter> key. The switcher checks whether it is password-protected.

   If the switcher is not password-protected, it checks and downloads the HTML start-up page. The switcher is ready for operation via HTML remote control.

   If the switcher is password-protected, it downloads the Enter Network Password page.

   NOTE: A User name entry is not required.

5. Enter the appropriate administrator or user password in the Password field and click **OK**.

6. The switcher downloads the HTML start-up page, shown below. The switcher is ready for operation via HTML remote control.